

ULTRA FAST RAPID THERMAL PROCESSING

CHAMBER AND METHOD OF USE

ABSTRACT

5 An apparatus and method and processing a semiconductor substrate that controls heating of the substrate to thereby control the depth of the junctions formed by impurities implanted in the semiconductor substrate by heating a device side of the semiconductor substrate to a reference temperature and heating the device side of the semiconductor substrate to a heat activation temperature that is greater than the reference temperature for an activation period, which provides sufficient energy to activate the impurities so that they become part of the lattice structure of the substrate while minimizing diffusion of the impurities across the substrate and reducing the temperature gradient in the substrate to minimize stress in the substrate.